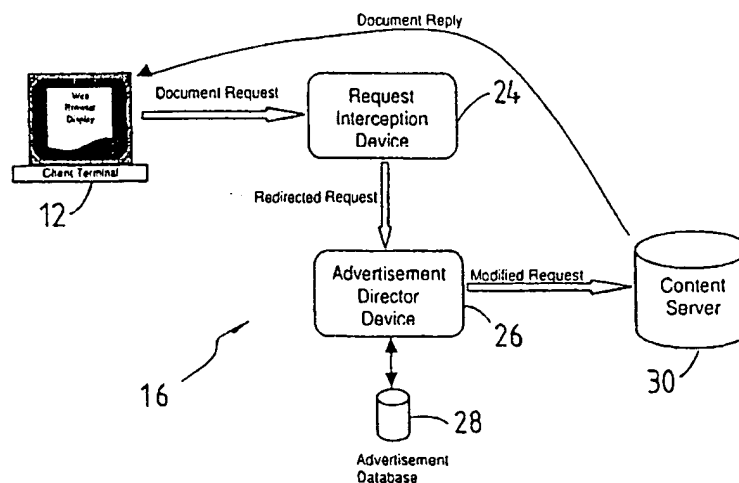




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(54) Title: A DYNAMIC ADVERTISING APPARATUS AND SYSTEM



(57) Abstract

A dynamic advertising apparatus or computer program (16) is provided for a communications system (10) having at least one user terminal (12) with information indication means (22) and at least one content terminal (14). The apparatus (16) comprises means for controlling the at least one user terminal so that information (20) originating from the at least one content terminal (14) and advertising or other promotional materials (18) originating from another source are presented on the indication means (22). The apparatus (16) is arranged to intercept a request for the information (20) from the at least one user terminal (12) and in response it retrieves and sends the advertising or other promotional materials (18) to the requesting user terminal(s) (12). The apparatus (16) may have a database of user profiles and the retrieved advertising or other promotional materials (18) is chosen in accordance with the profile of the user terminal (2). The apparatus (16) may also have a request modifying means for modifying the request so that it includes parameters relating to: locality of the requesting user, time of day at the locality, user usage pattern and user demographic, and the parameters are used to retrieve advertising or other promotional materials that match the parameters.

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A DYNAMIC ADVERTISING APPARATUS AND SYSTEM

TECHNICAL FIELD OF THE INVENTION

THIS INVENTION relates to a dynamic advertising apparatus/system and in particular but not limited to a dynamic Internet apparatus/system for an
5 Internet service provider (ISP).

BACKGROUND OF THE INVENTION

Communications networks generally include user terminals and content terminals in communication through relay stations. The relay stations perform one or more of the functions: relaying, retransmitting, switching and routing
10 information. The contents terminals typically incorporate advertising and other promotional materials with the information.

Where the communications networks are television and radio networks, the advertising and other promotional materials are usually inserted in specific time slots when transmission of the information or program is interrupted or between
15 separate information or programs. Thus, in these networks there is no room for the relay stations to present their own advertising and other promotional materials to people accessing the networks.

Where the communications networks are computer networks such as the Internet the relay stations are usually access control stations such as ISPs which
20 provide access services for user terminals to receive information from remote content terminals. In these networks users must send requests to the access control stations for information from specific content terminals. Upon receiving the requested information, usually in fragments, the access control stations deliver them to the requesting user terminals for indication in the form of a visual display and/or
25 audio message.

Many of the content terminals are situated in regions remote from the user terminals and the advertising and other promotional materials received with the requested information are mainly irrelevant to the users.

As users generally use access control terminals in the same regions for
30 accessing content terminals, the content terminals are ideally situated for delivering advertising and other promotional materials relevant to the users. The existing

access control terminals however cannot add these materials to the requested information.

Information such as documents and other media available on the Internet from content terminals are typically accessed with a viewing software called a "web browser". In normal operation, a browser in communication with an access control station responds to a user's command sends out a request for a web document from a specified content terminal. The request is then relayed to the specified content terminal by the access control station. The content terminal responds to the request and transmits the requested data for the document and advertising materials. The data is then suitably formatted and displayed by the browser such that the user can view the content.

These advertising materials are often in the form of a small amount of text and/or graphics which forms part of the page layout and/or audio messages. Typically, the advertisements are under the control of the content terminal which publishes the document.

The advertisements may not be specific for the users and may be inappropriate for the time of day and locality of the users.

OBJECT OF THE INVENTION

An object of the present invention is to alleviate or to reduce to a certain degree one or more of the prior art disadvantages.

SUMMARY OF THE INVENTION

In one aspect therefore the present invention resides in a dynamic advertising apparatus for a communications system having at least one user terminal with information indication means and at least one content terminal. The apparatus comprises means for controlling the at least one user terminal so that information originating from the at least one content terminal and advertising or other promotional materials originating from another source are presented on the indication means.

In another aspect therefore the present invention resides in a software program for a communications system having at least one user terminal with information indication means and at least one content terminal. The program comprises means for controlling the at least one user terminal so that information
5 originating from the at least one content terminal and advertising or other promotional materials originating from another source are presented on the indication means.

In a further aspect therefore the present invention resides in a communications system comprising at least one user terminal with information
10 indication means and at least one content terminal. The system includes a dynamic advertising apparatus having means for controlling the at least one user terminal so that information originating from the at least one content terminal and advertising or other promotional materials originating from another source are presented on the indication means.

15 Said communications system may include computer networks, television networks, telephone networks, radio networks and any hybrid thereof.

In preference the invention is arranged to intercept a request for information from the at least one user terminal and in response retrieving and sending the advertising or other promotional materials to the requesting user terminal(s).

20 The invention may include means for modifying the intercepted request so that the advertising or other promotional materials to be retrieved are relevant to a user of said requesting user terminal.

The modified request may include one or more parameters relating to at least one of the followings:- locality of the requesting user, time of day at the
25 locality, user usage pattern and user demographic.

Desirably the invention includes a database of user profiles and a database of advertising or other promotional materials for different user profiles, and is arranged to retrieve the advertising or other promotional materials substantially matching the profile of the requesting user terminal(s).

30 The user profiles may be obtained in any suitable manner. It is however preferred that the user profiles are classified according to pervious requests for

information and usage patterns. The applicant's co-pending patent application filed on even date describes such a user profile classification system.

Typically said another source is a relay station for providing communications links between the at least one user terminal and the at least one content terminals and the relay station is arranged to intercept a request for information from the at
5 least one user terminal and in response retrieving and sending the advertising or other promotional materials together with the request to the requesting user terminal(s).

Typically the relay station functions as a proxy server or router and the
10 controlling means in response to interception of said request sends a control program together with the request to the user terminal. The program instructs the requesting terminal to present the advertising or other promotional materials originated from the relay station and to resend the request for the information for indication in a manner bypassing the advertising or other promotional materials.

In one form said communications system includes the Internet having said
15 at least one user terminal with information indication means, said at least one content terminal and one or more Internet service providers (ISPs) for forwarding a request for information from the user terminal(s) to the content terminal(s) specified in the request. The apparatus of the present invention is arranged in said
20 ISPs.

In order that the present invention can be more readily understood and be put into practical effect reference will now be made to the accompanying drawings which illustrate one preferred embodiment of the invention and wherein:

BRIEF DESCRIPTION OF THE DRAWINGS

25 Figure 1 is a partial schematic diagram of the existing Internet;

Figure 2 is a partial schematic diagram of one embodiment of the apparatus of the present invention used as a part of the Internet;

Figure 3 is a front view of a screen of information displayed on the user terminal as instructed by the apparatus shown in Figure 2; and

30 Figure 4 is a partial schematic diagram of another embodiment of the apparatus of the present invention used as part of the Internet.

DETAILED DESCRIPTION OF THE DRAWINGS

Referring initially to Figure 1 there is shown an existing Internet arrangement 10 in which a plurality of user terminals 12 (one only shown) which in this case are computers may access documents or information in general provided by any of a plurality of content terminals 14 (one only shown) or servers in this case.

As can be seen the computer 12 sends a request specifying a particular document on a content server 14. This request is relayed to the content server 14 by way of an ISP (not shown) through which the computer 12 accesses the Internet. The content server 14 on receiving the request despatches the requested document and advertisements to the terminal 12.

Turning to Figure 2 which shows a partial schematic view of the Internet 10 incorporating an apparatus 16 according to the present invention. In this example the apparatus 16 is in the form of an advertisement server which is arranged to intercept any request for document or information from the plurality of computers 12. While not shown it should be appreciated that the apparatus 16 can be dedicated to serve one ISP or arranged for intercepting requests through different ISPs.

The apparatus 16 is placed on a network of the Internet in such a way that data transmitted between the computer 12 using a web browser and any of the Internet content servers 14 must flow through the apparatus 16.

The apparatus 16 behaves somewhat like a proxy server initially, by intercepting the request from the client. Whereas a proxy server would then forward the request to the specified content server 14, the apparatus 16 instead responds directly with an object containing a code fragment and various parameters including the original request.

Typically, the browser will interpret the content of the object by formatting and displaying any text and graphics, and interpreting and executing any scripts or code written in a programming language that it understands. The object returned to the browser by this apparatus 16 contains some code written in such a language.

Once the object is received, the browser executes the code which instructs the browser to display the advertisement 18 (see Figure 3) sent with the code, and

also resend the original request in such a way as to bypass the displayed advertisement when retrieving and displaying the requested document 20 (see Figure 3). Thus, the user is presented with an advertisement as well as the requested document. Figure 3 shows a browser screen 22 which has both the advertisement 18 and the document 20 thereon.

In this example the code sent to the browser must re-request the original document the user wishes to view. The document cannot be requested as per normal as it would be intercepted and replaced with the same code fragment, which would then display a second instance of the advertisement and again send the request, which would in turn be intercepted and so on. The request must be made in such a way as to circumvent this recursion problem. To overcome this problem the code instructs the request to be sent to a different port number, where a transparent proxy then forwards the request to the specified content server 14.

Alternatively the request can be mangled with a recognisable key. The advertisement server 16 would behave as a transparent proxy or router if it receives a request containing the key, passing the request through to the content server.

In this example the advertisement 18 and the document 20 are positioned in two stacked boxes. The placement of the advertisement can be changed by changing the code. Likewise the display space can also be dynamically modified. For example the display space can be created in the current browser window with various placements such as at the top, side or bottom of the browser window, as a watermark overlying the web page display, in a totally separate window, or on the desktop itself.

The mechanism of injecting a code fragment into the reply or response from the apparatus 16 can be adapted to allow for many variations in client hardware, software and operating system. The coding language used can also be varied to suit the capabilities of the browser and may include Java, Javascript, VBScript for example.

The code can be extended to include the capabilities to determine the brand and version of a web browser by querying the browser and environment variables. This allows it to choose the appropriate display style. For example, if the browser

is identified as supporting only text, the code can choose to display a text based advertisement with no graphics. It also allows for adjustments to be made in the code where different browser versions have implementation dependant features.

In the embodiment of the present invention shown in Figure 4, the apparatus
5 16 has a request interception means 24 arranged to intercept document requests from user terminals 12 (one only shown), a request modifying means 26 which in this case is included as an advertisement selection means arranged for modifying the requests from the user terminals 12 and advisement database 28 which have available advertisement materials matched to parameters relating to localities times,
10 patterns of usage, user profiles and any other parameters that can be used to identify interests, preferences, demographic users, and other like parameters of users.

This interception means 24 captures the request before it is forwarded to the target content server and diverts it to the advertisement selection means. The modifying means 26 then retrieves known parameters relating to the requesting user
15 terminal 12 and the parameter for the time of the request and use the parameters to retrieve an advertising material from the database 28 based on a match or close match between the retrieved advertising material and the parameters. The retrieved material is then sent to the user terminal 12.

Alternatively the modifying means 26 is adapted to modify the diverted
20 request by adding known parameters relating to the user terminal 12 the parameter for the time of the request and sends the modified request to a context server 30 which retrieves advertising materials which matches or closely matches the parameter(s) for sending to the user terminal 12.

The originally requested document can either be replaced by the retrieved
25 advertising material, or are retrieved together with the matching material so that both are sent to the user terminal 12.

As an example, the original user request is:

"http://www.adnow.com/sodapop.gif"

for a soda pop advertisement banner.

30 The interception means 24 captures the request and the modifying means 26 add the parameters "Geo" for geographic location of the user terminal 12 and

the parameter "time" for local time at the geographic location. It then interrogates the database 28 for relevant advertising materials matching the added parameters and modifies the request to:

`http://www.adnow.com/sodapo.pgif?geo = AU4064&time = 2200`

5 where AU4064 refers to the postcode of a the geographic location in Australia and time = 2200 refers to local time at the region, so that the advertisement content server 30 can retrieve the relevant advertisement materials for the location and suitable for the time, and send the modified request to "adnow" content server 30 which then retrieves the soda pop advertising material and send both the retrieved
10 advertising materials to the user terminal 12.

Alternatively the content server 30 can be adapted to send the retrieved material and the original request back to the user terminal 12 in a manner as described with reference to Figures 1 to 3.

The geographic location parameter and the local time parameter can be
15 estimated to an acceptable accuracy as the geographic structure of the communications network where the user terminal 12 is located can be determined. Typically an ISP network has various end point locations where the user terminals are located. These are known as fixed locations where network addresses (IP addresses) are routed to. Therefore, the locations of the user terminals 12 are
20 known to the same degree of accuracy as the network address routing.

Where IP address allocation is done dynamically in a large dial up access network, the granularity of accuracy would typically be to the local telephone call area code.

For corporate style connectors where the ISP delivers a static pool of IP
25 addresses to a gateway router in the business premises, the accuracy could be as good as the street address or even building level.

Another useful parameter is the intensity of use or site visits, frequency and duration. By monitoring how often a web page is requested and the duration between requests, the average page display time can be obtained. Advertisers can
30 then use the page display time parameter to advantage as longer display time means better value for money.

Other useful parameters may include basic demographic information. The present invention can obtain these parameters by using statistics on site classifications gathered using the apparatus described in the applicant's pending application no. PP9048. Because the classification of the sites visited are known,
5 an estimate can be made as to the demographic of persons surfing. For example, if eight out of ten sites visited are in the sports category, one of the parameters can be tailored for advertisements from the sports industry. Further, if the site categories are able to be classified in include more frequently visited sites by a particular gender, or age group, or any other arbitrary grouping, a parameter relating to this
10 can be used to further enhance the relevance of advertisements.

Whilst the above has been given by way of illustrative example of the present invention, many variations and modifications thereto will be apparent to those skilled in the art without departing from the broad ambit and scope of the invention as herein set forth.

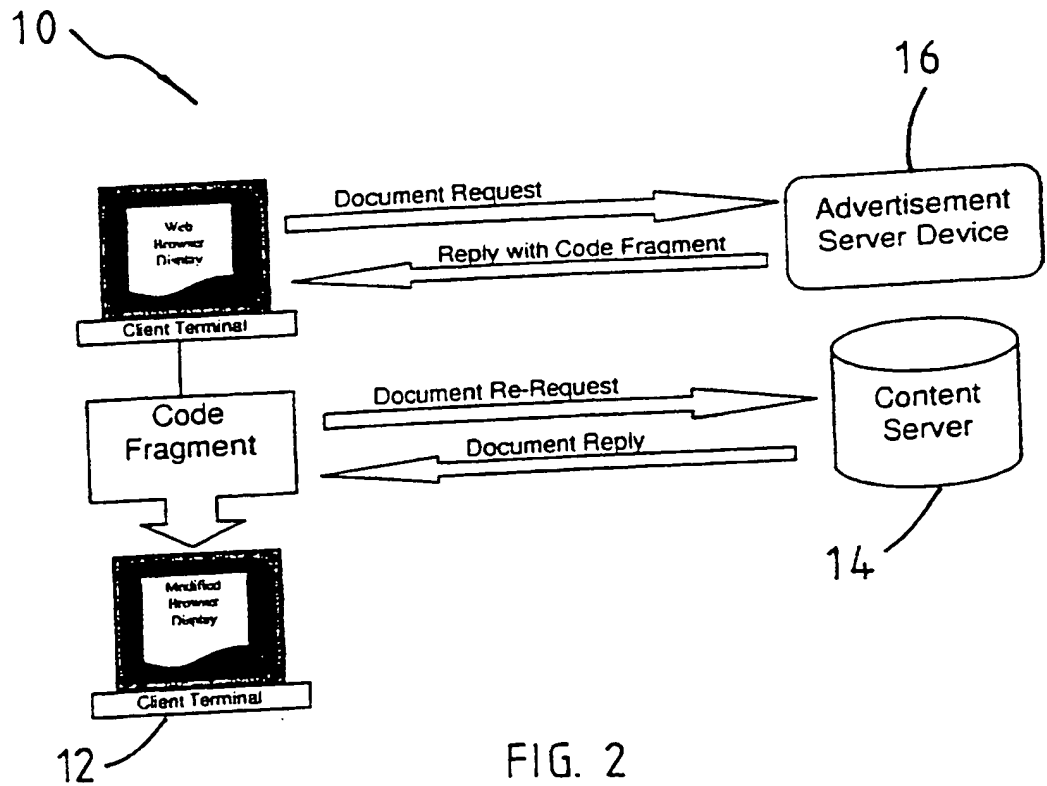
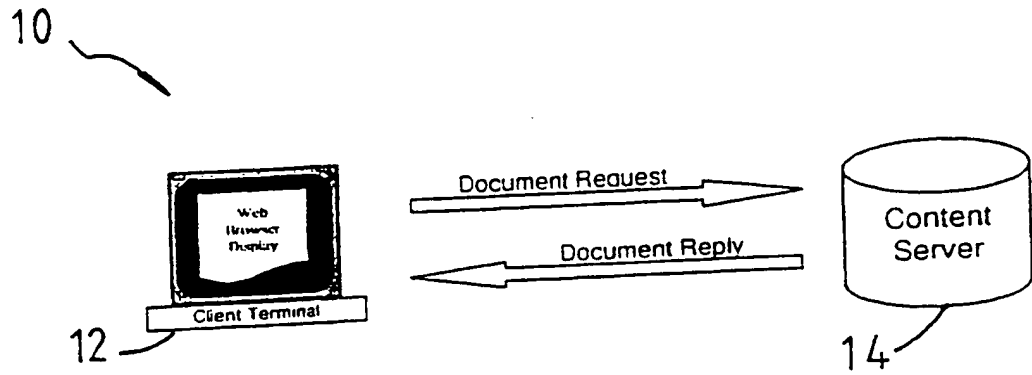
CLAIMS

1. A dynamic advertising apparatus for a communications system having at least one user terminal with information indication means and at least one content terminal, the apparatus comprises means for controlling the at least one user terminal so that information originating from the at least one content terminal and advertising or other promotional materials originating from another source are presented on the indication means, the apparatus being arranged to intercept a request for information from the at least one user terminal and in response to the intercepted request retrieving and sending the advertising or other promotional materials to the requesting user terminal(s).
2. A software program for a communications system having at least one user terminal with information indication means and at least one content terminal, the program comprises means for controlling the at least one user terminal so that information originating from the at least one content terminal and advertising or other promotional materials originating from another source are presented on the indication means, the program being arranged to intercept a request for information from the at least one user terminal and in response to the intercepted request retrieving and sending the advertising or other promotional materials to the requesting user terminal(s).
3. A communications system comprising at least one user terminal with information indication means and at least one content terminal, the system includes a dynamic advertising apparatus having means for controlling the at least one user terminal so that information originating from the at least one content terminal and advertising or other promotional materials originating from another source are presented on the indication means, the system being arranged to intercept a request for information from the at least one user terminal and in response to the intercepted request retrieving and sending the advertising or other promotional materials to the requesting user terminal(s).

4. The invention according to any one of claims 1 to 3 wherein said communications system comprising one or a combination of two or more network types including computer networks, television networks, telephone networks, radio networks and the like.
- 5 5. The invention according to any one of claims 1 to 4 further comprising means for modifying the intercepted request so that the advertising or other promotional materials to be retrieved are relevant to a user of said requesting user terminal.
6. The invention according to claim 5 wherein the modified request including
10 one or more parameters relating to at least one of the followings:- locality of the requesting user, time of day at the locality, user usage pattern and user demographic.
7. The invention according to any one of claims 1 to 6 further comprising a database of user profiles and a database of advertising or other promotional
15 materials for different user profiles, and is arranged to retrieve the advertising or other promotional materials substantially matching the profile of the requesting user terminal(s).
8. The invention according to claim 7 wherein the user profiles are classified according to pervious requests for information and usage patterns.
- 20 9. The invention according to any one of claims 1 to 8 wherein said another source is a relay station for providing communications links between the at least one user terminal and the at least one content terminals and the relay station is arranged to intercept the request for information.
10. The invention as claimed in claim 9 wherein the relay station functions as
25 a proxy server or router and the controlling means in response to interception of said request sends a control program together with the request to the user terminal and the control program is adapted to instruct the requesting terminal to present the advertising or other promotional materials originated from the relay station and to resend the request for the information for indication in a manner bypassing the
30 advertising or other promotional materials.

11. The invention according to any one of claims 1 to 10 wherein said communications system includes the Internet having said at least one user terminal with information indication means, said at least one content terminal and one or more Internet service providers (ISPs) for forwarding a request for information from
- 5 the user terminal(s) to the content terminal(s) specified in the request.

1/3



2/3

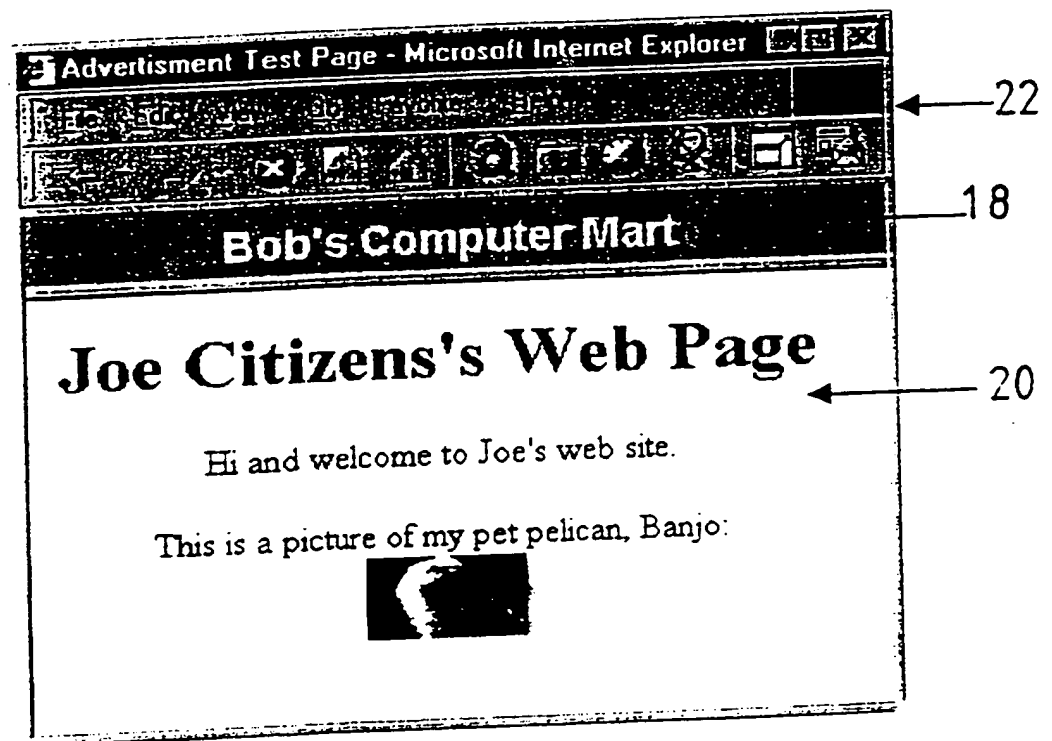


FIG. 3

3/3

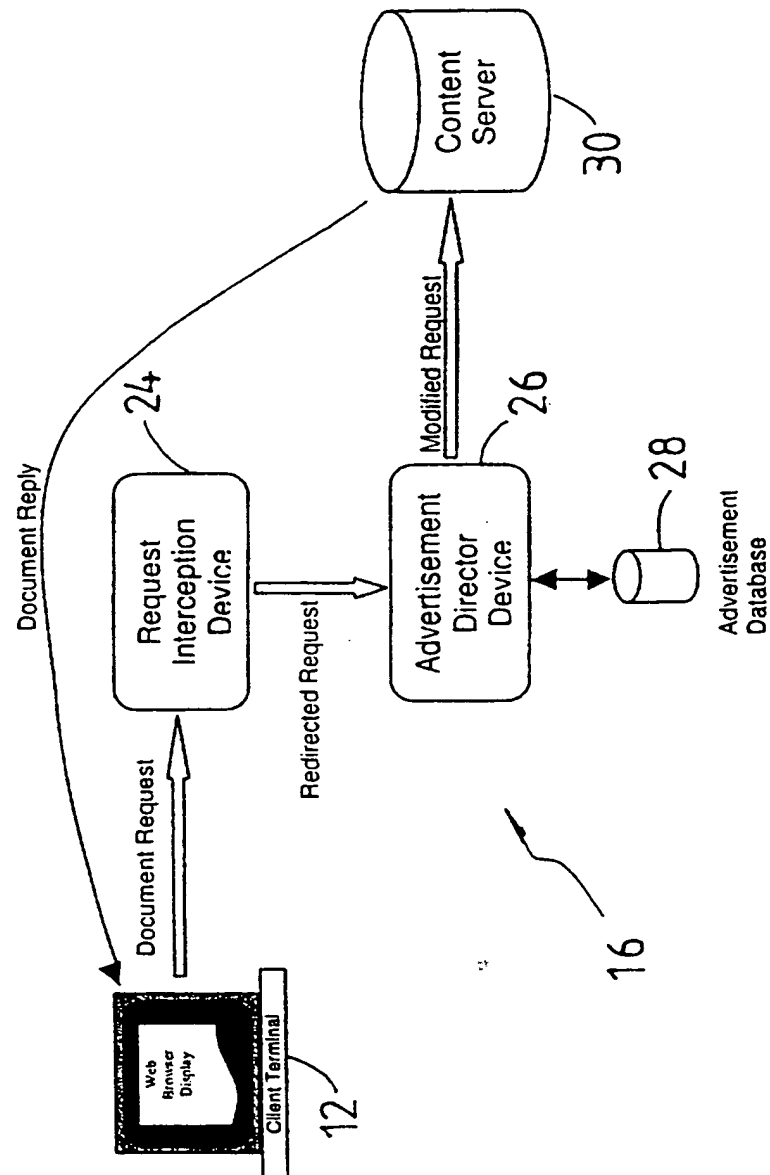


FIG. 4

INTERNATIONAL SEARCH REPORT

International application No.

PCT/AU00/00157

A. CLASSIFICATION OF SUBJECT MATTER

Int. Cl. G06F 17/60, 17/30

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

G06F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

WPAT: (INTERNET OR WWW OR WORLD WIDE WEB OR URL OR UNIFORM RESOURCE LOCATOR OR (WEB AND G06F/IC)) AND (ADVERTIS+ OR COMMERCIAL? OR PROMOT+)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 97/12468 A (BOSTON TECHNOLOGY, INC.) 3 APRIL 1997 -see whole document	1-11
X	WO 97/26729 A (ROBINSON, Gary B.) 24 July 1997 -see whole document	1-11
	WO 97/48198 A (STREAMIX CORPORATION) 18 DECEMBER 1997 -see whole document	1-11
X	WO 98/34189 A (FLYCAST COMMUNICATIONS CORP.) 6 AUGUST 1998 - see whole document	1-11

☐ Further documents are listed in the continuation of Box C
 ☒ See patent family annex

* Special categories of cited documents:

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"P" document published prior to the international filing date but later than the priority date claimed

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Date of the actual completion of the international search

8 May 2000

Date of mailing of the international search report

24 MAY 2000

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INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/AU00/00157

This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document Cited in Search Report				Patent Family Member	
WO	9712468	CN	1197568	EP	852875
WO	9726729	AU	15665/97	US	5918014
WO	9748198	AU	39575/97		
WO	9834189	AU	58196/98		
END OF ANNEX					

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